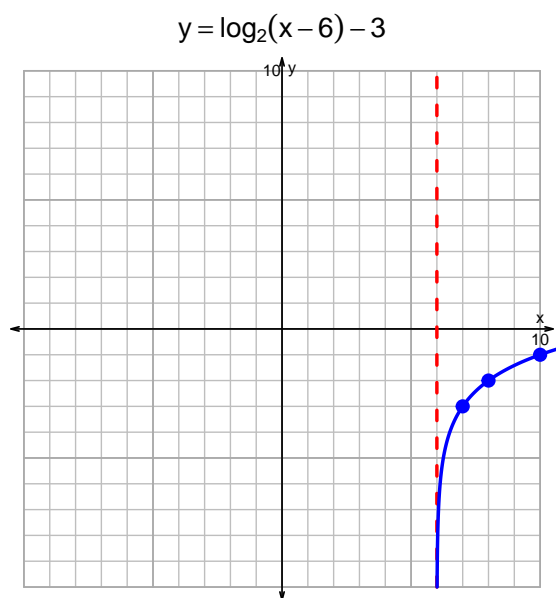
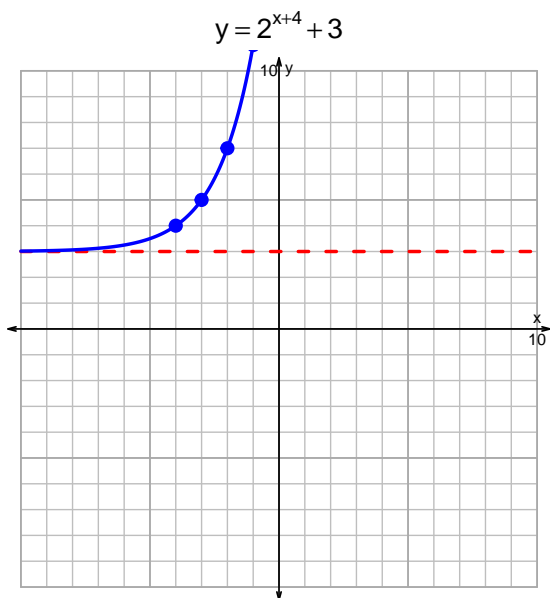


Name: \_\_\_\_\_

Date: \_\_\_\_\_

s18QUIZ: EXP LOG (SLTN v262)

1. Graph  $y = 2^{x+4} + 3$  and  $y = \log_2(x - 6) - 3$  on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$23 = \left(\frac{5}{3}\right) \cdot 10^{-4t/7}$$

Divide both sides by  $\frac{5}{3}$ .

$$\frac{23 \cdot 3}{5} = 10^{-4t/7}$$

Take log, base 10, of both sides.

$$\log_{10} \left( \frac{23 \cdot 3}{5} \right) = \frac{-4t}{7}$$

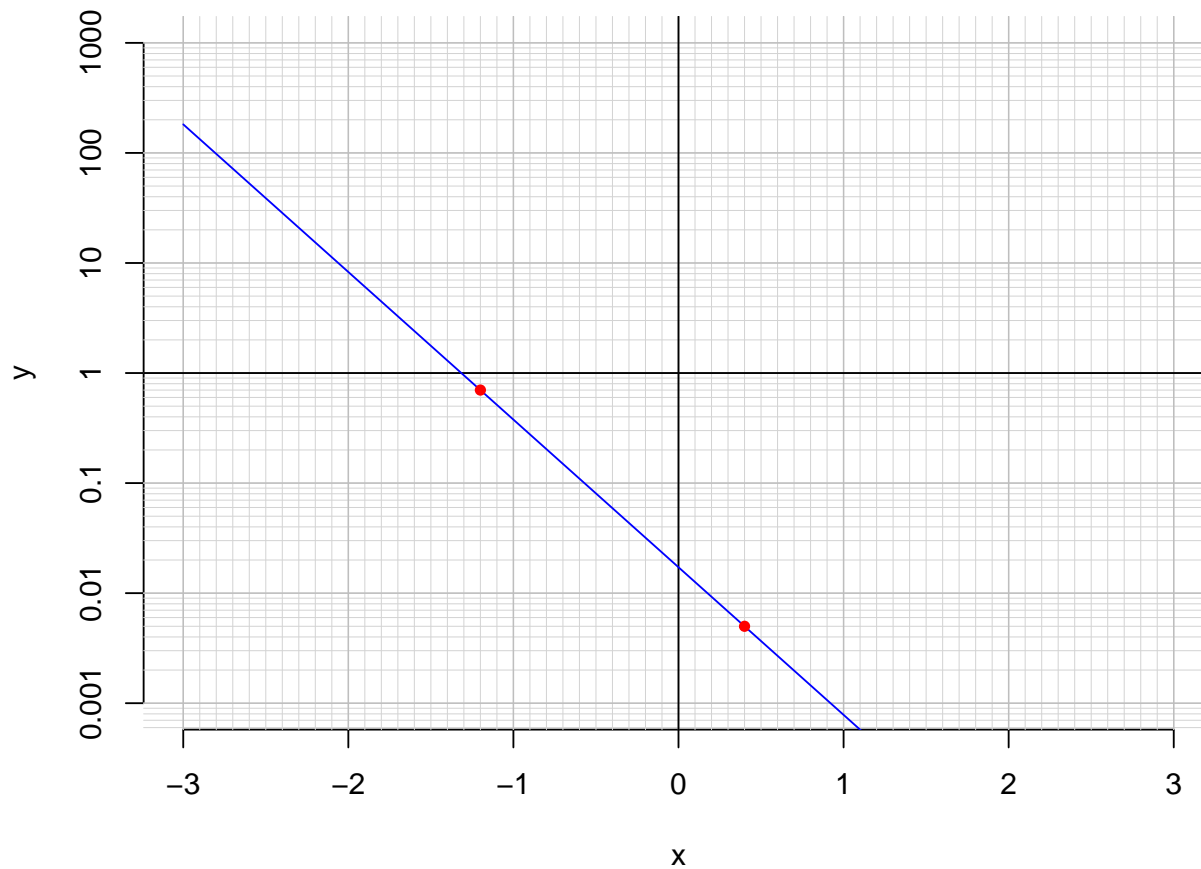
Divide both sides by  $\frac{-4}{7}$ .

$$\frac{-7}{4} \cdot \log_{10} \left( \frac{23 \cdot 3}{5} \right) = t$$

Switch sides.

$$t = \frac{-7}{4} \cdot \log_{10} \left( \frac{23 \cdot 3}{5} \right)$$

3. An exponential function  $f(x) = 0.0172 \cdot e^{-3.09x}$  is graphed below on a semi-log plot.



- a. Using the plot above, evaluate  $f(0.4)$ .

$$f(0.4) = 0.005$$

- b. Express  $f^{-1}(x)$ , the inverse of  $f$ .

$$f^{-1}(x) = \frac{-1}{3.09} \cdot \ln\left(\frac{x}{0.0172}\right)$$

- c. Using the plot above, evaluate  $f^{-1}(0.7)$ .

$$f^{-1}(0.7) = -1.2$$